Improved Understanding and Diagnosis of Tropical Cyclone Structure and Structure Changes

GOAL: Develop new tools that enhance the current capabilities to diagnose tropical cyclone (TC) structure and location using GOES-R advanced baseline imagery (ABI) and GOES lightning mapper (GLM) proxies.

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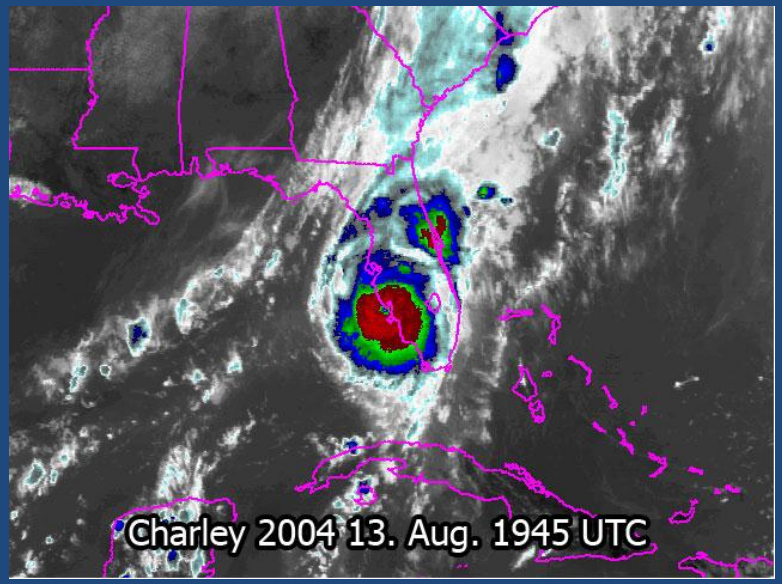
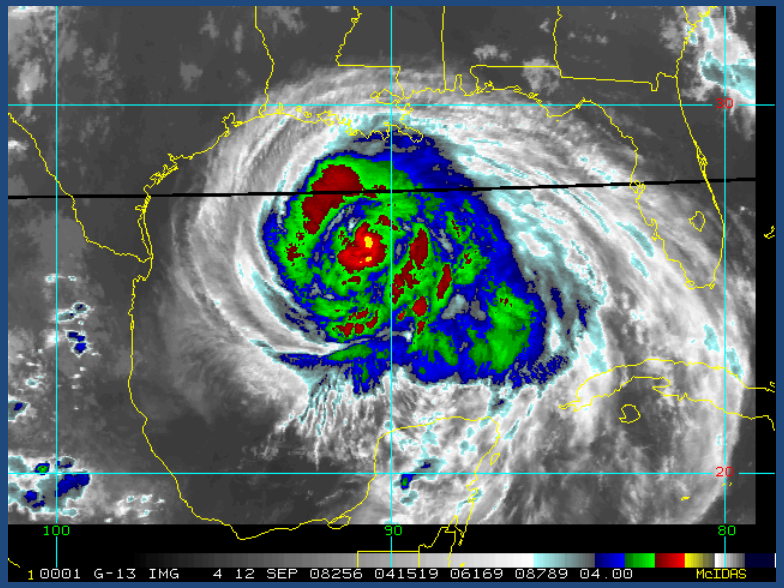
Presented by M. DeMaria (co-Investigator, StAR)

NOAA Satellites and Information
National Environmental Satellite, Data, and Information Service

Storm Structure Affects Impacts



Hurricane Charley 2004
Small category 4



Hurricane Ike 2008
Large category 2

Research Summary

1. Use multi-spectral satellite and lighting data to improve center and wind structure estimation
2. Quantify factors responsible for TC size variation, especially variations in moisture
3. Guide algorithm development with high resolution WRF simulations
    1. Microphysics sensitivity
4. Compare synthetic and real imagery
5. Statistical-dynamical models for size forecasting